AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1-58 (Cancelled)

59. (Previously Presented) A microporous material comprising organic macromolecules comprised of first generally planar species connected by rigid linkers predominantly to a maximum of two other said first species, said rigid linkers having a point of contortion such that two adjacent first planar species connected by the linker are held in non-coplanar orientation.

60. (Previously Presented) A microporous material according to claim 59, wherein the point of contortion is a spiro group, a bridged ring moiety or a sterically congested single covalent bond around which there is restricted rotation.

- 61. (Previously Presented) A microporous material according to claim 59, wherein the point of contortion is provided by a substituted or unsubstituted spiro-indane, bicyclo-octane, biphenyl or binaphthyl moiety.
- 62. (Previously Presented) A microporous material according to claim 59, wherein each of the first planar species comprises at least one aromatic ring.

63. (Previously Presented) A microporous material according to claim 59, wherein each of the first planar species comprises a substituted or unsubstituted moiety of the formula:

where X is O, S or NH.

64. (Previously Presented) A microporous material according to claim 59, wherein the material comprises repeating units of formula:

which may be substituted or unsubstituted.

65. (Previously Presented) A microporous material according to claim 59, wherein the material comprises repeating units of formula:

which may be substituted or unsubstituted.

66. (Previously Presented) A microporous material according to claim 59, wherein the material comprises repeating units of formula:

- 67. (Previously Presented) A microporous material according to claim 64, wherein the organic macromolecules are comprised of at least 70 % by mole of the repeating unit.
- 68. (Previously Presented) A microporous material according to claim 65, wherein the organic macromolecules are comprised of at least 80 % by mole of the repeating unit.
- 69. (Previously Presented) A microporous material according to claim 66, wherein the organic macromolecules are comprised of at least 90 % by mole of the repeating unit.

- 70. (Previously Presented) A microporous material according to claim 59, wherein the material has a surface area of at least 300 m² g⁻¹.
- 71. (Previously Presented) A microporous material according to claim 59, wherein the material has an average pore diameter of less than 100 nm.
- 72. (Previously Presented) A microporous material according to claim 59, wherein the material has a number average mass in the range 1 x 10^3 to 1000 x 10^3 amu compared to polystyrene standards.
- 73. (Previously Presented) A method for producing the microporous material of claim 59 comprising reacting a first monomer unit having a point of contortion with a pair of second generally planar monomer units.
- 74. (Previously Presented) A membrane comprising a microporous material according to claim 59.
- 75. (Previously Presented) A membrane according to claim 74, wherein the membrane has a thickness which is less than or equal to 2 mm.
- 76. (Previously Presented) A membrane according to claim 74, wherein the membrane includes an additional entity selected from a catalyst species, an

organometallic species, an inorganic species, at least one type of metal ion; and at

least one type of metal particle.

77. (Previously Presented) A method for producing a free standing membrane in

accordance with claim 74, the method comprising the steps of: i) casting a solution

of the microporous material of which the membrane is comprised; and ii) evaporating

the solvent to produce the membrane.

78. (Previously Presented) A method in accordance with claim 77, wherein the

membrane produced is cross-linked using a suitable cross-linking agent.

79. (Previously Presented) A method for separating a first species from a mixture of

said first species and a second species, the method comprising the steps of: i)

applying the mixture to one side of a membrane in accordance with claim 74; ii)

causing the first species to pass through the membrane; and iii) collecting the first

species from an opposite side of the membrane.

80. (Previously Presented) A method for enriching a first species in a first mixture

of said first species and a second species, the method comprising the steps of: i)

applying the first mixture to one side of a membrane in accordance with claim 74; ii)

causing the first mixture to pass through the membrane; and iii) collecting a second

mixture of the first and second species, which is enriched in respect of the first

species compared to the first mixture, from an opposite side of the membrane.

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- 81. (Previously Presented) A catalyst system comprising a catalytic species and a microporous material according to claim 59.
- 82. (Previously Presented) A tissue support comprising a microporous material according to claim 59.
- 83. (Previously Presented) A molecular sensor comprising a microporous material according to claim 59.
- 84. (Previously Presented) An opto-electronic material comprising a microporous material according to claim 59.
- 85. (Previously Presented) A microporous material comprising organic macromolecules comprised of first generally planar species connected by rigid linkers having a point of contortion such that two adjacent first planar species connected by the linker are held in non-coplanar orientation, subject to the proviso that the first species are other than porphyrinic macrocycles.
- 86. (New) A method for producing a supported membrane in accordance with claim 74, the method comprising the steps of i) applying a solution of the microporous material of which the membrane is comprised onto a suitable support; and ii) evaporating the solvent to produce the membrane.